AMENDMENTS TO THE CLAIMS

Please amend the claims as follows. This listing of claims replaces all prior versions and listings of claims in the application.

1-12 (canceled).

13 (currently amended). A method for determining accurate range measurements in multipath and poor signal-to-noise ratio environments and subsequently improving location determination at a position receiver incorporating a directionally agile beam antenna, said position receiver configured to receive Time Division Multiple Access (TDMA) positioning signals transmitted by a network of synchronized positioning-unit devices at known locations, the method comprising:

a) calculating the location of said position receiver from said received Time Division Multiple Access (TDMA) positioning signals, and

b) steering a directional gain pattern of said directionally agile beam antenna ~~directional gain pattern exlcusively~~ exclusively towards the origin of the currently received Time Division Multiple Access (TDMA) positioning signal, said steering responsive to:

i) said calculated location of said position receiver, and

ii) said known locations of said synchronized ~~positining-unit~~ positioning-unit devices.

14 (previously presented). The method of claim 13, wherein said calculating the location of said position receiver form said received Time Division Multiple Access (TDMA) positioning signals additionally includes a calculation of a network time of said positioning signals transmitted by said positioning unit devices at known locations, and said steering is additionally responsive to said calculated network time.

15 (previously presented). The method of claim 13, wherein said calculating the location of said position receiver from said received Time Division Multiple Access

(TDMA) positioning signals additionally includes the determination of a Time Division Multiple Access (TDMA) sequence of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering is additionally responsive to said determined Time Division Multiple Access (TDMA) sequence.

16 (previously presented). The method of claim 13, wherein said calculating the location of said position receiver from said received Time Division Multiple Access (TDMA) positioning signals additionally includes a calculation of the propagation delay of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering is additionally responsive to said calculated propagation delay.

17 (previously presented). The method of claim 13 wherein said position receiver incorporating a directionally agile beam antenna is further configured with an attitude determination means, said calculating includes an additional step of determining the attitude of said position receiver, and said steering is additionally responsive to said determined attitude.

18 (currently amended). A method for determining accurate range measurements in multipath and poor signal-to-noise ratio environments in a Time Division Multiple Access (TDMA) location network and subsequently improving the location determination at a position receiver, the method comprising:

a) deploying a plurality of synchronized positioning-unit devices at known locations transmitting positioning signals in a Time Division Multiple Access (TDMA) sequence;

b) deploying said position receiver configured with a directionally agile beam antenna;

c) configuring said directionally agile beam antenna to receive said positioning signals from substantially all directions;

d) calculating the location of said position receiver from said received positioning signals;

e) reconfiguring said directionally agile beam antenna to receive said positioning signals from substantially one direction;

f) steering a directional gain pattern of said reconfigured ~~said~~ directionally agile beam antenna ~~directional gain pattern~~ exclusively towards the origin of the currently received positioning signal, said steering responsive to:

i) said calculated location of said position receiver, and

ii) said known locations of said synchronized positioning-unit devices.

19 (previously presented). The method of claim 18, wherein said calculating the location of said position receiver from said received positioning signals additionally includes a calculation of a network time of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering is additionally responsive to said calculated network time.

20 (previously presented). The method of claim 18, wherein said calculating the location of said position receiver from said received positioning signals additionally includes a determination of a Time Division Multiple Access (TDMA) sequence of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering is additionally responsive to said determined Time Division Multiple Access (TDMA) sequence.

21 (previously presented). The method of claim 18, wherein said calculating the location of said position receiver from said received positioning signals additionally includes a calculation of the propagation delay of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering is additionally responsive to said calculated propagation delay.

22 (previously presented). The method of claim 18, wherein said position receiver configured with a directionally agile beam antenna is further configured with an attitude determination means, said calculating includes an additional step of determining the attitude of said position receiver, and said steering is additionally responsive to said determined attitude.

23 (currently amended). A system for determining accurate range measurements in multipath and poor signal-to-noise ratio environments in a Time Division Multiple Access (TDMA) location network, the system comprising:

a) a plurality of synchronized positioning-unit devices at known locations transmitting positioning signals in a Time Division Multiple Access (TDMA) sequence;

b) a position receiver configured with a directionally agile beam antenna;

c) means configured to calculate the location of said position receiver from said transmitted positioning signals;

d) means configured to steer a directional gain pattern of said directionally agile beam antenna ~~directional gain pattern~~ exclusively towards the origin of the currently received positioning signal, said steering responsive to:

i) said calculated location of said position receiver, and

ii) said known locations of said synchronized positioning-unit devices.

24 (previously presented). The system of claim 23, wherein said means configured to calculate the location of said position receiver additionally includes a means configured to calculate a network time of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering means is additionally responsive to said calculated network time.

25 (previously presented). The system of claim 23, wherein said means configured to calculate the location of said position receiver additionally includes a means configured to determine a Time Division Multiple Access (TDMA) sequence of said positioning signals transmitted by said positioning-unit devices at known locations, and said

steering means is additionally responsive to said determined Time Division Multiple Access (TDMA) sequence.

26 (previously presented). The system of claim 23, wherein said means configured to calculate the location of said position receiver additionally includes a means configured to calculate the propagation delay of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering means is additionally responsive to said calculated propagation delay.

27 (previously presented). The system of claim 23, wherein said position receiver configured with a directionally agile beam antenna is further configured with an attitude determination means, said means configured to calculate the location of said position receiver includes an additional means configured to determine the attitude of said position receiver, and said steering means is additionally responsive to said determined attitude.

28 (currently amended). A system for determining accurate range measurements in multipath and poor signal-to-noise ratio environments in a Time Division Multiple Access (TDMA) location network, the system comprising:

a) a plurality of synchronized positioning-unit devices at known locations transmitting positioning signals in a Time Division Multiple Access (TDMA) sequence;

b) a position receiver configured with a directionally agile beam antenna;

c) means configured to adjust said directionally agile beam antenna to receive said transmitted positioning signals from substantially all directions;

d) means configured to calculate the location of said position receiver from said transmitted positioning signals;

e) means configured to readjust said directionally agile beam antenna to receive said transmitted positioning signals from substantially one direction;

f) means configured to steer a directional gain pattern of said directionally agile beam antenna ~~directional gain pattern~~ exclusively towards the origin of the currently received positioning signal, said steering responsive to:

i) said calculated location of said position receiver, and

ii) said known locations of said synchronized positioning-unit devices.

29 (previously presented). The system of claim 28, wherein said means configured to calculate the location of said position receiver additionally includes a means configured to calculate a network time of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering means is additionally responsive to said calculated network time.

30 (previously presented). The system of claim 28, wherein said means configured to calculate the location of said position receiver additionally includes a means configured to determine a Time Division Multiple Access (TDMA) sequence of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering means is additionally responsive to said determined Time Division Multiple Access (TDMA) sequence.

31 (previously presented). The system of claim 28, wherein said means configured to calculate the location of said position receiver additionally includes a means configured to calculate the propagation delay of said positioning signals transmitted by said positioning-unit devices at known locations, and said steering means is additionally responsive to said calculated propagation delay.

32 (previously presented). The system of claim 28, wherein said position receiver configured with a directionally agile beam antenna is further configured with an attitude determination means, said means configured to calculate the location of said position receiver includes an additional means configured to determine the attitude of said

position receiver, and said steering means is additionally responsive to said determined attitude.